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Re 09/970,409 - EAST 1.3

BRS	L1	3369	edit\$3 same tool		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 14:27	
BRS	L2	3418	auto or automatic\$4)same(generat\$3 or creat\$3)same(window or dialog adj1		
box			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 14:29	
BRS	L3	226	l1 and l2		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:24	
BRS	L4	6	menu same(finite or predetermin\$4)same(program\$4 near5 statement\$1)		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:08	
BRS	L5	2	l3 and l4		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:11	
BRS	L6	37	assist\$3 or select\$3 or sugest\$3) same menu same(program\$4 near5		
statement\$1					
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:23	
BRS	L7	2	l3 and l6USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25	
15:11					
IS&R	L8	168	(717/110-113).CCLS.		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:11	
IS&R	L9	1359	(345/710,714-716,762-764,781,808,809,825).CCLS.		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:11	
IS&R	L10	1323	(707/512,530,531,534).CCLS.		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:12	
BRS	L11	3	l6 and l8		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:14	
BRS	L12	48	l3 and (l9 or l10)		
			USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/11/25 15:15	
BRS	L13	4	assist\$3 or select\$3 or sugest\$3) same menu same(program\$4 near5		
statement\$1					
			US-PGPUB	2002/11/25 15:24	
BRS	L14	0	l1 and l2	US-PGPUB	2002/11/25 15:24

# Brief Summary Text - B8TX (24):

Selection **menu** information in an assist window includes any **link** list of previously declared entities and/or entity types that can validly be included at the present character position cursor location in a **programming language statement**. A selection **menu** includes at least one **menu** item. The set of the at least one **menu** item in a given selection **menu** is defined by the portion of the **programming language statement** that immediately precedes the present character position cursor location. A **menu** item being displayed in a selection **menu** can be accepted by the programmer in a manner that results in the selected **menu** item being automatically inserted into the immediate **programming language statement** at the present character position cursor location without the programmer having to type any or all of the characters of the selected **menu** item. Thus, a selection **menu** assist window supplies information about a **programming language statement** and the ability to build it on part of a **programming language statement** in a manner that the programmer can use or ignore individually or in combination according to the programmer's immediate needs.

## Detailed Description Text - DETX (8):

A selection **menu** assist window displays a **link** list of syntactically valid **menu** items that are based on previously defined object entities. Each **menu** item in a given selection **menu** assist window is also only applicable to the immediate section of the **programming language statement** that is proximate to the character position cursor on the programmer's display screen. Choosing from the **link** list of **menu** items saves the programmer from having to independently recall the list of valid possibilities that can be used to complete an

recall the list of valid possibilities that can be used to complete an

	U	Document ID	Current OR	Pages	Title
1	<input type="checkbox"/>	US 6311323 B1	717/111	25	Computer programming language statement building and informati
2	<input type="checkbox"/>	US 6026233 A	717/113	24	Method and apparatus for preser selecting options to modify a
3	<input type="checkbox"/>	US 6657091 A	726/37	41	Video display controller, user int and programming structure for s
4	<input type="checkbox"/>	US 6408603 A	346/763	65	Global process control informati system and method
5	<input type="checkbox"/>	EP 292647 A2			Operator assistance method for processing.
6	<input type="checkbox"/>	US 6657091 A			Display controller for video displ

Details Text Image HTML KWIC



US06311323B1

(12) United States Patent  
Shulman et al.

(10) Patent No.: US 6,311,323 B1  
(45) Date of Patent: Oct. 30, 2001

(54) COMPUTER PROGRAMMING LANGUAGE STATEMENT BUILDING AND INFORMATION TOOL

(75) Inventors: Matthew Shulman, Bellevue; Matthew James Curland, Redmond; Martin Chelilla, Redmond; David Anthony Sobek, Redmond, all of WA (US)

(73) Assignee: Microsoft Corporation, Redmond, WA (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 09/391,087

(22) Filed: Sep. 7, 1999

### Related U.S. Application Data

(63) Continuation of application No. 08/853,822, filed on May 27, 1997, now Pat. No. 6,126,233.

(51) Int. Cl. G06F 9/45

(52) U.S. Cl. 717/1; 717/4; 717/5; 345/337; 345/338

(56) Field of Search 365/701, 702; 345/337, 338, 353; 707/534; 717/1, 4, 5

### References Cited

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(List continued on next page.)

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Hugut, A.; Metwally, A.; Dagady, L.; Abu El Saadat, W.; El-Kadi, A.; El-Kasas, S.; "Visual Craft: A Visual Integrated Development Environment"; Proceedings of the Second IEEE Symposium on Computers and Communications, pp. 210-214, Jul. 1997.  
Tavres, L.; Schridge, P.; "Intelligent Assistance for Software Construction: A Case Study"; Proceedings of the Ninth Knowledge-Based Software Engineering Conference, pp. 14-21, Sep. 1994.

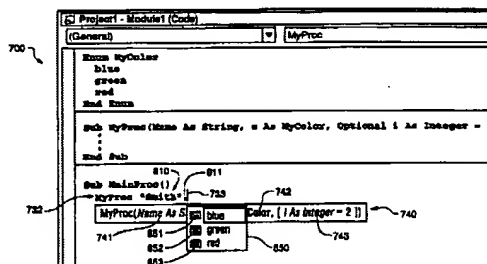
(List continued on next page.)

Primary Examiner—Reba I. Elmore  
(74) Attorney, Agent, or Firm—Leydig, Voit & Mayes, Ltd.

### ABSTRACT

An intelligent real time tool to assist a computer programmer during the writing and/or maintenance of a computer program. The tool generates assist windows that contain program related information that the programmer can use to construct a programming language statement and/or to obtain real time information about a programming language statement. An assist window can be automatically displayed as determined by the tool itself, and/or manually displayed on demand in response to a user input command. An assist window displays two general categories of information including but not limited to selection menu information based on a partial compilation of all programming language statements, and informational displays based on a partial compilation and a reverse pass of an immediate programming language statement. The statement generating tool assist windows are non-intrusive to programmer input and can be ignored by the programmer by merely continuing to type an immediate programming language statement without interacting with the assist windows that are proximate the programming language statement being constructed by the programmer.

37 Claims, 11 Drawing Sheets



Selection **menu** information in an assist window includes any **finite** list of previously declared entities and/or entity types that can validly be included at the present character position cursor location in a **programming language statement**. A selection **menu** includes at least one **menu** item. The set of the at least one **menu** item in a given selection **menu** is defined by the portion of the **programming language statement** that immediately precedes the present character position cursor location. A **menu** item being displayed in a selection **menu** can be accepted by the programmer in a manner that results in the selected **menu** item being automatically inserted into the immediate **programming language statement** at the present character position cursor location without the programmer having to type any or all of the characters of the selected **menu** item. Thus, a selection **menu** assist window supplies information about a **programming language statement** and the ability to build all or part of a **programming language statement** in a manner that the programmer can use or ignore individually in combination according to the programmer's immediate needs.

#### Detailed Description Text - DETX (8):

A selection **menu** assist window displays a **finite** list of syntactically valid **menu** items that are based on previously defined object entities. Each **menu** item in a given selection **menu** assist window is also only applicable to the immediate section of the **programming language statement** that is proximate to the character position cursor on the programmer's display screen. Choosing from the **finite** list of **menu** items saves the programmer from having to independently recall the list of valid possibilities that can be used to complete an immediate section of a **programming language statement**. Choosing from the

finite list of **menu** items also saves the programmer from having to manually

U	Document ID	Current OR	Pages	Title
1	US 6311323 B1	717/111	25	Computer programming language statement building and informati
2	US 6026233 A	717/113	24	Method and apparatus for preser selecting options to modify a
3	US 6667091 A	726/37	41	Video display controller, user inte and programming structure for s
4	US 6408603 A	346/763	66	Global process control informati system and method
5	EP 292647 A2			Operator assistance method for processing.
6	US 6667091 A			Display controller for video displ

## United States Patent

Shulman et al.

Patent Number: 6,026,233  
Date of Patent: Feb. 15, 2000

- [54] METHOD AND APPARATUS FOR PRESENTING AND SELECTING OPTIONS TO MODIFY A PROGRAMMING LANGUAGE STATEMENT
- [75] Inventors: Matthew Shulman, Bellevue; Matthew James Curfand, Redmond; Martin Chittila, Redmond; David Anthony Sobush, Redmond, all of Wash.
- [73] Assignee: Microsoft Corporation, Redmond, Wash.
- [21] Appl. No.: 08/843,632
- [22] Filed: May 27, 1997
- [51] Int. Cl.<sup>7</sup>: G06F 9/45
- [52] U.S. Cl.: 395/701; 395/702; 345/347; 707/334
- [58] Field of Search: 395/705, 706, 395/707, 708, 709, 701, 702, 707/334, 345/338, 347, 353

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Terveen, L.; Selfridge, P.; "Intelligent Assistance for Software Construction: A Case Study"; Proceedings of the Ninth Knowledge-Based Software Engineering Conference; pp. 14-31, Sep. 1994.

Kaiser, G.; Felier, P.; Popovich, S.; "Intelligent Assistance for Software Development and Maintenance"; IEEE Software; vol. 5, issue 3, pp. 40-49, May 1988.

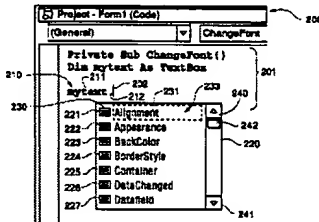
Microsoft Corporation; "Getting Results with Microsoft Office for Windows 95, Version 7.0"; Microsoft Press; p. 303, 1995.

Primary Examiner—Emanuel Todd Voets  
Assistant Examiner—Brian Sautzahn  
Attorney, Agent, or Firm—Laydig, Veit & Meyer, Ltd

#### ABSTRACT

An intelligent real time tool to assist a computer programmer during the writing and/or maintenance of a computer program. The tool generates assist windows that contain program related information that the programmer can use to construct a programming language statement and/or to obtain real time information about a programming language statement. An assist window can be automatically displayed as determined by the tool itself, and/or manually displayed on demand in response to a user input command. An assist window displays two general categories of information including but not limited to selection cases information based on a partial compilation of all programming language statements, and informational displays based on a partial compilation and a reverse parse of an immediate programming language statement. The statement generating tool assist windows are non-intrusive to programmer input and can be ignored by the programmer by merely continuing to type an immediate programming language statement without interacting with the assist windows that are proximate the programming language statement being constructed by the programmer.

8 Claims, 11 Drawing Sheets



digitally encoded control program data stored in said memory devices and effective on execution by said microcontroller for modifying said video signals in predetermined manners in response to predetermined image directing signals, said program data having at least two layered statements executed sequentially, each said statement being a selected one of a menu statement and a flow statement, said menu statement having at least a description portion for directing a display to a user and selectively having an action portion for directing data structure flow to another statement, said flow statement having at least an action portion for directing data structure flow to another statement and selectively having a description portion for directing a display to a user, each of said menu and flow statements which has both description and action portions also having a unique connector character disposed between said

portions for identifying the distinction therebetween.

#### Claims Text - CLTX (22):

digitally encoded control program data stored in said memory devices and effective on execution by said microcontroller for modifying said video signals in predetermined manners in response to predetermined image directing signals, said program data having at least two layered statements executed sequentially, each said statement being a selected one of a menu statement and a flow statement, said menu statement having at least a description portion for directing a display to a user and selectively having an action portion for directing data structure flow to another statement, said flow statement having at least an action portion for directing data structure flow to another statement and selectively having a description portion for directing a display

statement and selectively having a description portion for directing a display

U	Document ID	Current OR	Pages	Title
1	US 6311323 B1	717/111	25	Computer programming language statement building and informati
2	US 6026233 A	717/113	24	Method and apparatus for preser selecting options to modify a
3	US 5657091 A	725/37	41	Video display controller, user int and programming structure for s
4	US 5408603 A	346/763	65	Global process control informati system and method
5	EP 292647 A2			Operator assistance method for processing.
6	US 5667091 A			Display controller for video displ

Details Text Image HTML KWIC

## United States Patent (19)

Bertram



US 5657091 A

(11) Patent Number: 5,657,091

(43) Date of Patent: \*Aug. 12, 1997

### (54) VIDEO DISPLAY CONTROLLER, USER INTERFACE AND PROGRAMMING STRUCTURE FOR SUCH INTERFACE

(75) Inventor: Randal Lee Bertram, Raleigh, N.C.

(73) Assignee: International Business Machines Corporation, Armonk, N.Y.

(\*) Note: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,548,340.

(21) Appl. No.: 631,626

(22) Filed: Nov. 1, 1996

(51) Int. Cl. 6: E04N 5/44

(52) U.S. Cl.: 348/559; 348/588; 348/589; 348/734; 348/713; 381/61

(58) Field of Search: 348/734, 725, 348/601, 906, 473, 563-565, 589, 343/133, 167, 157, 161; 359/146; 381/65; 453/42, 399/132; E04N 5/44

### (57) References Cited

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5,338,678 7/1996 Bertram et al. 348/734

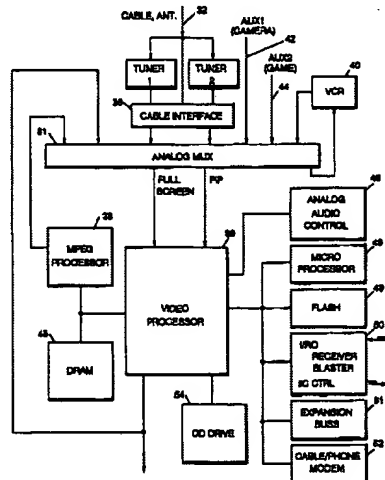
5,548,340 8/1996 Bertram 348/259

Primary Examiner—Gordon B. Burgess  
Attorney Agent, or Firm—Daniel B. McCord

#### ABSTRACT

The use of video/audio signal streams such as in the past have been distributed by broadcast over radio frequency bands or by cable distribution, or made available from video recorder/player devices such as cassette recorders or video disc players, or made available from direct, live sources such as cameras, game systems or computers. In accordance with this invention, programs stored in memory devices associated with microcontrollers controlling the display to a user are constructed in a language which uses layered statements, each of which can have a description portion, an action portion, and a unique connecting character.

6 Claims, 17 Drawing Sheets



Details Text Image HTML Full

digitally encoded control program data stored in said memory devices and effective on execution by said microcontroller for modifying said video signals in **predetermined** manners in response to **predetermined** image directing signals, said **program data having at least two layered statements** executed sequentially, each said statement being a selected one of a **menu** statement and a flow statement, said **menu** statement having at least a description portion for directing a display to a user and selectively having an action portion for directing data structure flow to another statement, said flow statement having at least an action portion for directing data structure flow to another statement and selectively having a description portion for directing a display to a user, each of said **menu** and flow statements which has both description and action portions also having a unique connector character disposed between said

portions for identifying the distinction therebetween.

#### Claims Text - CLTX (53):

digitally encoded control program data stored in said memory devices and effective on execution by said microcontroller for modifying said video signals in **predetermined** manners in response to **predetermined** image directing signals, said **program data having at least two layered statements** executed sequentially, each said statement being a selected one of a **menu** statement and a flow statement, said **menu** statement having at least a description portion for directing a display to a user and selectively having an action portion for directing data structure flow to another statement, said flow statement having at least an action portion for directing data structure flow to another statement and selectively having a description portion for directing a display

U	Document ID	Current OR	Pages	Title
1	US 6311323 B1	717/111	26	Computer programming language statement building and informati
2	US 6026233 A	717/113	24	Method and apparatus for preser selecting options to modify a
3	US 5657091 A	725/37	41	Video display controller, user int and programming structure for s
4	US 6408603 A	346/763	66	Global process control informati system and method
5	EP 292647 A2			Operator assistance method for processing.
6	US 5657091 A			Display controller for video displ

## United States Patent (19)

Bertram



US05657091A

(11) Patent Number: 5,657,091

(45) Date of Patent: \*Aug. 12, 1997

### (54) VIDEO DISPLAY CONTROLLER, USER INTERFACE AND PROGRAMMING STRUCTURE FOR SUCH INTERFACE

(75) Inventor: Randal Lee Bertram, Raleigh, N.C.

(73) Assignee: International Business Machines Corporation, Armonk, N.Y.

(\*) Note: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,348,340.

(21) Appl. No.: 831,626

(22) Filed: Nov. 1, 1996

(51) Int. Cl. B60K 5/04

(52) U.S. Cl. 348/559; 348/558; 348/559; 348/734; 348/113; 381/61

(54) Field of Search 348/559, 348/558, 348/559, 348/734, 348/113, 381/61, 107, 137, 161; 359/346; 381/61; 458/1, 393/152; ED047 544

### (56) References Cited

#### U.S. PATENT DOCUMENTS

5,336,675 7/1996 Bertram et al. 348/734

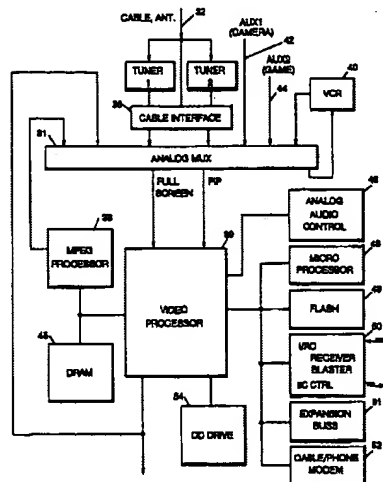
5,348,340 9/1996 Bertram 348/559

Primary Examiner—Glenon B. Burgess  
Attorney, Agent, or Firm—Daniel B. McCord

### (57) ABSTRACT

The use of video/audio signal streams such as in the past have been distributed by broadcast over radio frequency bands or by cable distribution, or made available from video recorder/player devices such as cassette recorders or video disc players, or made available from direct, live sources such as cameras, game systems or computers. In accordance with this invention, programs stored in memory devices associated with microcontrollers controlling the display to a user are constructed in a language which uses layered statements, each of which can have a description portion, an action portion, and a unique connecting character.

6 Claims, 37 Drawing Sheets



US-PAT-NO: 5408603

DOCUMENT-IDENTIFIER: US 5408603 A

TITLE: Global process control information system and method

\_\_\_\_\_ KWIC \_\_\_\_\_

Detailed Description Text - DETX (128):

Frequently, the user will want to follow a thread or sequence of displays, backtracking or moving forward through related program statements to locate which program statement is in control of a portion in question of the overall process. This may be conveniently done by selecting the previous pipe button 224 on the main menu bar. See FIG. 15g. Depressing the previous pipe button causes a pull-down menu to appear below the button in which a predetermined number of the variable names last displayed are listed. The previous pipe button is quite handy, since often a user will want to reselect for display a program statement which was recently displayed. The previous pipes list is reset or cleared when a different computer is selected via the computer selection button 204.

Details Text Image HTML KWIC

	U	4	Document ID	Current OR	Pages	Title
1	<input type="checkbox"/>	<input type="checkbox"/>	US 6311323 B1	717/111	26	Computer programming language statement building and informati
2	<input type="checkbox"/>	<input type="checkbox"/>	US 6026233 A	717/113	24	Method and apparatus for preser selecting options to modify a
3	<input type="checkbox"/>	<input type="checkbox"/>	US 6667091 A	726/37	41	Video display controller, user Int and programming structure for s
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 5408603 A	345/763	65	Global process control informatio system and method
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EP 292647 A2			Operator assistance method for r processing.
6	<input type="checkbox"/>	<input type="checkbox"/>	US 6667091 A			Display controller for video displa

Details Text Image HTML

United States Patent [19]

Van de Lervu et al.

US 5408603 A

[11] Patent Number: 5,408,603

[45] Date of Patent: Apr. 18, 1995

[54] GLOBAL PROCESS CONTROL INFORMATION SYSTEM AND METHOD

[75] Inventors: Romy Van de Lervu, AS Sins  
Janssen, Netherlands; Marlene  
Fulda, Nieuwerp, Belgium; Jan  
Ravenscroft, Winkels, Groot  
Brink

[73] Assignee: Dow Benelux N.V., Netherlands

[21] Appl. No.: 861,271

[22] Filed: Mar. 31, 1993

[51] Int. Cl. G06F 15/46

[52] U.S. Cl. 353/160, 353/161

[53] Field of Search: 353/160, 353/161, 353/162, 353/163, 353/164, 353/165, 353/166, 353/167, 353/168, 353/169, 353/170, 353/171, 353/172, 353/173, 353/174, 353/175, 353/176, 353/177, 353/178, 353/179, 353/180, 353/181, 353/182, 353/183, 353/184, 353/185, 353/186, 353/187, 353/188, 353/189, 353/190, 353/191, 353/192, 353/193, 353/194, 353/195, 353/196, 353/197, 353/198, 353/199, 353/200, 353/201, 353/202, 353/203, 353/204, 353/205, 353/206, 353/207, 353/208, 353/209, 353/210, 353/211, 353/212, 353/213, 353/214, 353/215, 353/216, 353/217, 353/218, 353/219, 353/220, 353/221, 353/222, 353/223, 353/224, 353/225, 353/226, 353/227, 353/228, 353/229, 353/230, 353/231, 353/232, 353/233, 353/234, 353/235, 353/236, 353/237, 353/238, 353/239, 353/240, 353/241, 353/242, 353/243, 353/244, 353/245, 353/246, 353/247, 353/248, 353/249, 353/250, 353/251, 353/252, 353/253, 353/254, 353/255, 353/256, 353/257, 353/258, 353/259, 353/260, 353/261, 353/262, 353/263, 353/264, 353/265, 353/266, 353/267, 353/268, 353/269, 353/270, 353/271, 353/272, 353/273, 353/274, 353/275, 353/276, 353/277, 353/278, 353/279, 353/280, 353/281, 353/282, 353/283, 353/284, 353/285, 353/286, 353/287, 353/288, 353/289, 353/290, 353/291, 353/292, 353/293, 353/294, 353/295, 353/296, 353/297, 353/298, 353/299, 353/300, 353/301, 353/302, 353/303, 353/304, 353/305, 353/306, 353/307, 353/308, 353/309, 353/310, 353/311, 353/312, 353/313, 353/314, 353/315, 353/316, 353/317, 353/318, 353/319, 353/320, 353/321, 353/322, 353/323, 353/324, 353/325, 353/326, 353/327, 353/328, 353/329, 353/330, 353/331, 353/332, 353/333, 353/334, 353/335, 353/336, 353/337, 353/338, 353/339, 353/340, 353/341, 353/342, 353/343, 353/344, 353/345, 353/346, 353/347, 353/348, 353/349, 353/350, 353/351, 353/352, 353/353, 353/354, 353/355, 353/356, 353/357, 353/358, 353/359, 353/360, 353/361, 353/362, 353/363, 353/364, 353/365, 353/366, 353/367, 353/368, 353/369, 353/370, 353/371, 353/372, 353/373, 353/374, 353/375, 353/376, 353/377, 353/378, 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**PAT-NO: EP000292647A2**

**DOCUMENT-IDENTIFIER: EP 292647 A2**

**TITLE: Operator assistance method for data processing.**

**PUBN-DATE: November 30, 1988**

**INVENTOR-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
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**APPL-NO: EP88102729**

**APPL-DATE: February 24, 1988**

**PRIORITY-DATA: US03429487A (April 1, 1987)**

**INT-CL (IPC): G06F003/023**

**;G06F003/033**

**EUR-CL (EPC): G06F009/44**

**ABSTRACT:**

**CHG DATE=19990617 STATUS=O> In a computer program requiring an instruction statement having commands arranged in a predefined syntax, an aid is**



incorporated to help an operator in constructing the instruction statement by causing the displaying of a first screen portion having a plurality of command areas, a designation of one of the command areas, and a second screen portion of input data alternatives for the designated command area; and, upon receiving information from the operator containing input data for the designated command area, the updating of the first screen portion to reflect such input data, the designating of a next command area and the changing of data alternatives of the second screen portion to a set appropriate to such next command area; the latter operations being repeated until all of the commands for the instruction statement have been input whereby the command is aggregated in a manner conforming to the predetermined syntax even though the operator may be unaware of that syntax. As a preliminary set-up operation, a prior display is progressively created repeatedly prompting the operator to provide input data and displaying such input data received from the operator in response to the menu, this prior display being wiped, when complete, and replaced by the two screen portion display of the preceding claims which is generated from the cumulative prior input operator data.

PAT-NO: EP000292647A2

DOCUMENT-IDENTIFIER: EP 292647 A2

TITLE: Operator assistance method for data processing.

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NAME COUNTRY  
HEARIN, KAREN KASTNER N/A  
JAMES, WENDY SUE N/A

ASSIGNEE-INFORMATION:

NAME COUNTRY  
IBM US

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ABSTRACT:

CHG DATE=19990617 STATUS=0> In a computer program requiring an instruction statement having commands arranged in a predefined syntax, an aid is incorporated to help an operator in constructing the instruction statement by

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	U	Document ID	Current OR	Pages	Title
2	<input type="checkbox"/>	US 6026233 A	717/113	24	Method and apparatus for preser...
3	<input type="checkbox"/>	US 6667091 A	725/37	41	Video display controller, user int...
4	<input type="checkbox"/>	US 6408603 A	345/763	66	Global process control informati...
5	<input checked="" type="checkbox"/>	EP 292647 A2		18	Operator assistance method for d...
6	<input type="checkbox"/>	US 6667091 A		41	Display controller for video displ...

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Europäisches Patentamt  
European Patent Office  
Office européen des brevets

Publication number: 0 292 647 A2

EUROPEAN PATENT APPLICATION

Application number: 86102728.8 Int. CL: G06F 3/023

Date of filing: 84.02.88

The title of the invention has been amended (Guidelines for Examination in the EPO, A-II, 7.3).

Priority: 01.04.87 US 34294

Date of publication of application: 30.11.88 Bulletin 88/48

Designated Contracting States: DE FR GB

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Operator assistance method for data processing.

In a computer program requiring an instruction statement having commands arranged in a predefined syntax, an aid is incorporated to help an operator in constructing the instruction statement by causing the displaying of a first screen portion having a plurality of command areas, a designation of one of the command areas, and a second screen portion of input data alternatives for the designated command area; and, upon receiving information from the operator containing input data for the designated command area, the updating of the first screen portion to reflect such input data, the designating of a next command area and the changing of data alternatives of the second screen portion to a set appropriate to such next command area; the latter operations being repeated until all of the commands for the instruction statement have been input whereby the command is aggregated in a manner conforming to the predefined syntax even though the operator may be unaware of that syntax. As a preliminary set-up operation, a prior display is progressively created repeatedly prompting the operator to provide input data and displaying such input data resolved from the operator in response to the menu, this prior display being wiped, when complete, and replaced

by the two screen portion display of the preceding claims which is generated from the cumulative prior input operator data.

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INT-CL (IPC): H04N005/44

ABSTRACTED-PUB-NO: US 5657091A

**BASIC-ABSTRACT:** The controller includes receiver circuitry which receives command signals from command transmitter circuitry and derives image directing signals. The image directing signals direct modification of visual images displayed by a video display. A microcontroller is coupled to the command receiver circuitry and to the video display, receives the image directing signals and executes control sequences in response. The visual images are modified according to manipulation of a remote control device by a human observer. Memories coupled to the microcontroller receive, store and deliver digitally encoded data used by the microcontroller to execute control programs.

Digitally encoded control program data stored in memory modify the video signals in response to **predetermined** image directing signals. The **program data** have at least two layered statements executed sequentially, with each statement selected from a **menu** or flow statement. The **menu** statement has a description portion which directs a display to a user. An action portion directs data structure flow to another statement. The flow statement has at least an action portion which directs data structure flow to another statement and has a description portion which directs a display to a user. Each **menu** and flow statement with both description and action portions also has a unique connector character which identifies the distinction between the portions.

**ADVANTAGE** - Minimal buttons need be actuated by user for simple interface.

**CHOSEN-DRAWING:** Dwg.3/18

U	4	Document ID	Current OR	Pages	Title
2		US 6026233 A	717/113	24	Method and apparatus for presenting selecting options to modify a
3		US 5657091 A	725/37	41	Video display controller, user interface and programming structure for s
4		US 6408603 A	345/763	65	Global process control information system and method
5		EP 292647 A2		18	Operator assistance method for processing.
6		US 5657091 A		41	Display controller for video display - has programs stored in memory

United States Patent (19)  
Bertram

(11) Patent Number: 5,657,091  
(45) Date of Patent: \*Aug. 12, 1997

(34) VIDEO DISPLAY CONTROLLER, USER INTERFACE AND PROGRAMMING STRUCTURE FOR SUCH INTERFACE

(73) Inventor: Randall Lee Bertram, Raleigh, N.C.  
(72) Assignee: International Business Machines Corporation, Armonk, N.Y.

(\*) Note: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,548,340.

(21) Appl. No.: 851,630

(22) Filed: Nov. 1, 1996

(31) Int. Cl. 6: H04N 5/44

(37) U.S. Cl.: 348/839; 348/318; 348/269; 348/734; 348/113; 348/161

(34) Field of Search: 348/734, 725, 348/801, 906, 473, 563-565, 589; 348/158, 167, 157, 151; 359/46; 381/40; 455/4.2; 395/152; H04N 5/44

(56) References Cited  
U.S. PATENT DOCUMENTS

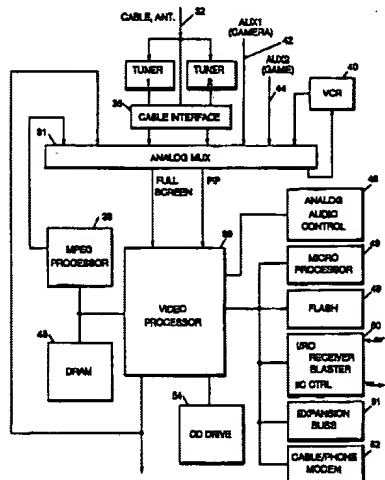
5,339,478 7/1996 Bertram et al. 348/734  
5,548,340 8/1996 Bertram 348/239

Primary Examiner: Glenon B. Bergman  
Attorney, Agent, or Firm: Daniel E. McConrad

(57) ABSTRACT

The use of video/audio signal streams such as in the past have been distributed by broadcast over radio frequency bands or by cable distribution, or made available from video recording/playback devices such as cassette recorders or video disc players, or made available from direct, live sources such as cameras, game systems or computers. In accordance with this invention, programs stored in memory devices associated with microcontrollers controlling the display to a user are constructed in a language which uses layered statements, each of which can have a description portion, an action portion, and a unique connecting character.

8 Claims, 17 Drawing Sheets



an element for storing the computer program being generated. A further element displays the program to the operator. A positioning element demarks a location of interest within the program. A **menu** element displays permissible programming modifications for the location of interest. The **menu** element incorporates in its display of permissible **programming modification statements**

for machine vision analysis of an object image, e.g., calls to machine vision subroutines and functions. To facilitate specification of input parameters to those subroutines and functions, the imaging element can generate a candidate image of the object upon which the machine vision analysis is to be run. A graphical input element displays over that candidate image a graphical icon that the operator can manipulate to specify the parameters. A textual input element can display an icon, e.g., a dialog box, prompting the operator to designate textually input parameters for the machine vision tool. An update element responds to the operator **selection** by appropriately modifying the stored program.

#### Detailed Description Text - DETX (6):

The **menu** element 16 graphically displays a list of permissible programming modifications. The programming modifications are syntactically correct—that is, they include additions or deletions that insure that the program contains proper language constructs. In a preferred embodiment, the permissible programming modifications include permissible additions, deletions and other modifications of the program. The additions, themselves, include **programming statements** e.g., commands, declarations, subroutines and functions and function calls. The preferred illustrated embodiment is intended for use in generating computer programs for machine vision analysis and, accordingly, specifically includes **programming statements** e.g., subroutine and function calls, for invoking machine vision tools. The **menu** 16 accepts responses to an operator's **selection** of a modification by generating a **selection** signal 19.

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	U	Document ID	Current OR	Pages	Title
1	<input type="checkbox"/>	US 6311323 B1	717/111	25	Computer programming language statement building and information
2	<input type="checkbox"/>	US 6026233 A	717/113	24	Method and apparatus for presenti selecting options to modify a
3	<input checked="" type="checkbox"/>	US 5481712 A	717/109	41	Method and apparatus for interact generating a computer program for

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DOCUMENT-IDENTIFIER: US 5481712 A

TITLE: Method and apparatus for interactively generating a computer program for machine vision analysis of an object

— KWIC —

Abstract Text - ABTX (1):

A system for interactively generating a computer program for machine vision analysis insures that the program is correct by permitting the operator to make only syntactically correct modifications to the program. The system includes an element for storing the computer program being generated. A further element displays the program to the operator. A positioning element demarks a location of interest within the program. A menu element displays permissible programming modifications for the location of interest. The menu element incorporates in its display of permissible programming modifications statements

for machine vision analysis of an object image, e.g., calls to machine vision subroutines and functions. To facilitate specification of input parameters to those subroutines and functions, the imaging element can generate a candidate image of the object upon which the machine vision analysis is to be run. A graphical input element displays over that candidate image a graphical icon that the operator can manipulate to specify the parameters. A textual input element can display an icon, e.g., a dialog box, prompting the operator to designate textually input parameters for the machine vision tool. An update element responds to the operator selection by appropriately modifying the stored program.

Details Test Image HTML KWIC

	U	Document ID	Current OR	Pages	Title
1	<input type="checkbox"/>	US 6311323 B1	717/111	25	Computer programming language statement building and informati
2	<input type="checkbox"/>	US 6026233 A	717/113	24	Method and apparatus for presenti selecting options to modify a
3	<input checked="" type="checkbox"/>	US 5481712 A	717/109	41	Method and apparatus for interact generating a computer program fo

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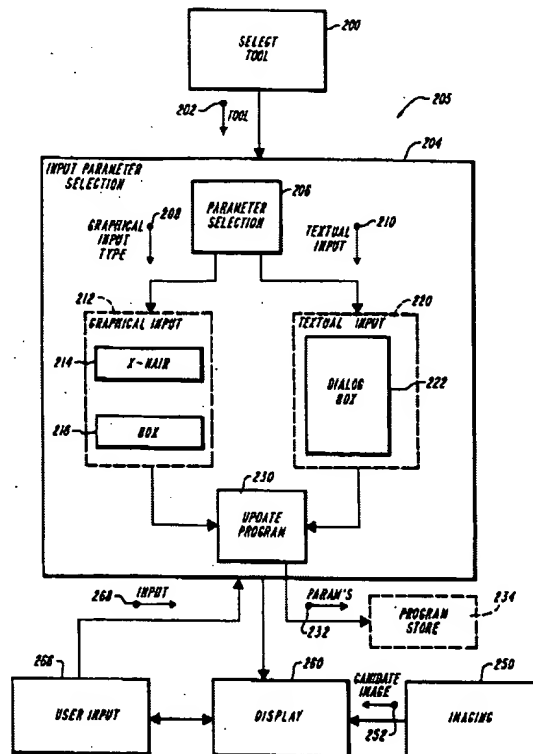


FIG. 2

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